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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,352	02/13/2006	Jang-Kun Song	8071-148T (OPP043105US)	5683
22150 7590 09/17/2010 F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			EXAMINER HOLTON, STEVEN E	
			ART UNIT 2629	PAPER NUMBER
			NOTIFICATION DATE 09/17/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mail@chauiplaw.com
uspto1@chauiplaw.com
garramone@chauiplaw.com

Office Action Summary	Application No. 10/520,352	Applicant(s) SONG ET AL.	
	Examiner Steven E. Holton	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5, 7 and 20-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5, 7 and 20-33 is/are allowed.
- 6) ☒ Claim(s) 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 6/30/2010. Claims 3-5, 7, and 20-34 are currently pending in the application. An action follows below:

Response to Arguments

2. Applicant's arguments filed 6/30/2010 have been fully considered but they are not persuasive.

The Applicant has argued that the prior art of Mizutani (USPN: 6392620) fails to teach that in one frame at least one of M areas of the display displays a gray (image) based on applied data signals and the area of the display also displays a black image based on black data signals. The Examiner respectfully disagrees.

Mizutani teaches that for each frame period all pixels on the display go through a period of displaying an image (Figs. 3A and 3B, the periods when the red, green, and blue signals are applied to the pixels, each pixel displays a corresponding gray based on the data signals received) and a period of displaying a black image (Figs. 3A and 3B, the periods of "BL or Light Off" are periods when only black is being displayed by the areas of the display). Therefore, in the course of each frame of Mizutani each line of the display has at least one period where image data produces a gray image and a period where the area displays a black image based on the black image data. This reads on the newly added limitation which requires that in one frame at least one area displays a gray image and a black image. The timing of the display of the gray image or

Art Unit: 2629

the black image is not specified or required within the claim to anything other than both need to occur during the time of one frame. Mizutani clearly teaches that all pixels will display both gray images or black images during one frame and teaches the limitations of the newly amended claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (USPN: 6392620), hereinafter Mizutani, in view of Surguy (USPN: 5233338).

Regarding claim 34, Mizutani discloses a display device having a plurality of pixels (Fig. 2, elements 5, 6, 7, and 1b form a single pixel of the display). The display has a plurality of scan lines (Fig. 2, elements 8) used to control the pixels by selecting a single row and a plurality of data lines (Fig. 2, elements 11) for transmitting image data signals to the pixels being selected by the scanning lines. Mizutani also discloses a gate driver (Fig. 2, element 12) and a data driver (Fig. 2, element 13) and a controller for controlling the drivers (Fig. 2, element 23). Mizutani does not expressly divide the display into M scanning areas, but the display could be logically divided into 2, 3, 4, or more groupings such as the top third, middle third, and bottom third, or into quarters, or any other desired grouping. Mizutani discloses driving the display so that during a

Art Unit: 2629

single frame period each of the scanning areas is selected by scan driver in a first direction (top to bottom) and when selected a gray data signal is applied to the pixels to drive an image to the pixel. Following the writing of image data of gray signals to the pixels all of the pixels of the display are selected and a black voltage is applied to all pixels so that a black image is displayed (Figs. 3A and 3B; col. 3, line 44 - col. 4, line 17). This driving of an image and then a black image in a single frame would require selecting each of the scan lines in M scanning areas (the top third, then the middle third, then the bottom third) in order to first write normal data to each pixel and then selecting the gate lines in each of M scanning areas again to write black data to each pixel for a single frame. During the period of a single frame at least one of the M areas displays a gray image based on image data (Fig. 3b, during F11, the top third displays red, green, and blue image data) and then later during the same frame the same area displays a black image based on applied black data signals (Fig. 3b, during F12, the top third of the display is re-scanned and displays a black image).

Mizutani does not disclose changing the direction of selecting the scanning lines in the display from one frame to the next frame.

Surguy discloses a liquid crystal display device that reverses the scanning direction of the display for each frame (Fig. 4).

At the time of invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Mizutani and Surguy to produce a liquid crystal display device that inserts black data after normal data for each frame and reverses the scanning direction of the display for each frame. The motivation would have been to

Art Unit: 2629

increase the amount of lamp illumination time during driving of the normal display data and improving the brightness of the display (Surguy, col. 1, lines 61-64). Thus, it would have been obvious to one of ordinary skill in the art that the scanning direction of the display device of Mizutani could be reversed after each frame using the teachings of Surguy to produce a device as described in claim 34.

Allowable Subject Matter

4. Claims 3-5, 7, and, 20-33 are allowed.

The reasons for allowance of these claims were provided in the Examiner's Amendment/Notice of Allowance mailed on 12/7/2009. The reasons for allowance are maintained.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571)272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

/Steven E Holton/
Examiner, Art Unit 2629
September 11, 2010